

The effects of yoga practice in school physical education on children's motor abilities and social behavior

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ABSTRACT

Background: In recent years, yoga programs in childhood have been implemented in schools, to promote the development for children.

Aim: To investigate the effects of yoga program in physical education classes on the motor abilities and social behavior parameters of 6–8-year-old children.

Methods: The study included 16 children from the 1st grade of a public elementary school in the South of Brazil. The children participated in a 12-week intervention, twice weekly, with 45 min each session. To assess children's performance, we used the Bruininks-Oseretsky Test of Motor Proficiency - Second Edition, the flexibility test (sit and reach – Eurofit, 1988), the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children and semi-structured interviews with children, parents, and classroom' teacher. Data were analyzed with Wilcoxon test and level of significance was 5%.

Results: The yoga program was well accepted by children, children also demonstrated significant and positive changes in overall motor abilities scores (balance, strength, and flexibility). In addition, the interviews reported changing in social behavior and the use of the knowledge learned in the program in contexts outside of school.

Conclusion: These findings suggest that the implementation of yoga practice in physical education lessons contributed to children's development.


Key words: Balance; Bruininks-Oseretsky Test of Motor Proficiency - Second Edition; children; flexibility; strength; yoga; yoga in schools.

INTRODUCTION

Motor skill intervention programs in childhood have been effective in providing participants benefits on motor,^[1] affective, and social development.^[2] Recognizing the benefits of yoga' practice to promote overall health, in recent years, yoga programs for children have been implemented in several countries^[3-6] and recently also in Brazil.^[7,8] Although yoga is an ancient practice that seeks a balance between the body, mind and emotions^[9] and

the literature highlight its benefits on the motor, physical, cognitive, and social aspects,^[10-12] its effectiveness on child development is scarce.

Yoga programs have gain popularity; however, there is a lack of studies in this field, especially involving school-age children. Furthermore, studies are very restricted and focus on the analysis of few aspects of participants' improvements.^[12-14] The objective of this study was

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to investigate the effects of a 12-week yoga program implemented in a Physical Education curriculum on the motor, physical, and behavioral parameters of 6–8-year-old children. Our hypothesis was that through a yoga program, children would improve their motor abilities and physical capacities, and also present some positive changes in behavior toward yoga practice.

METHODS

Design

This study is characterized as a quasi-experimental study with mixed method,^[15] which was chosen to integrate the results and produce a relationship between the findings.^[16] The study was approved by the University's Ethics Committee (no. 2003109).

Subjects

The selection of the sample was intentional, according to children's and parents' acceptance. The study included 16 children (8 males and 8 females), aged 6–8 years old, who had no previous experience with yoga. The children were enrolled in the 1st grade of an elementary public school located in the periphery of a major city in the South of Brazil. One of the children had a diagnosis of autism; none of the others were diagnosed with disabilities. The informed consent was obtained from the parents and/or legal guardians and the school board of education.

Assessment

The balance, running speed and agility, and strength subtests of the Bruininks-Oseretsky Test of Motor Proficiency - Second Edition were used to assess children motor abilities.^[17] The performance of the child in each task generated a gross score, and the sum of the tasks generated the total raw score, which was converted to a standard score according to the child's sex and age.^[17] For this study, we used the results by task and the total raw score for each subtest.

A version of the sit and reach from Eurofit test^[18] was used to assess children flexibility. The children sited on the floor barefoot and with legs stretched out straight ahead. Both knees locked and pressed flat to the floor. Children placed their heels on the mark and then with palms facing downward and the hands on top of each other reached forward along the measuring. Children hold the position for seconds while the distance was recorded in centimeters. The better of two attempts was considered.

The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSPCSA) was used to assess the children perceptions of competence and social

acceptance.^[19] This scale consists of 24 items organized into four subscales: Perceived cognitive and motor competence, social and maternal acceptance. Each question includes two figures: One of these figures represents a competent/accepted child, and the other a child not as competent/accepted. After choosing which figure feels more alike them, children must decide how much the level of concordance (range: From 1 [low proficiency/acceptance] to 4 [high competence/acceptance]). The sum of the questions result in the subscale score, and the sum of the subscales results in the total score.^[19]

To assess behavioral toward yoga, semi-structured interviews with the children and the classroom teacher were conducted. The interview of the children involved questions regarding the meaning of yoga practice, the activities they most liked to do, the practice outside of school, and the interest to continue practicing. The teacher's interview looked at issues relating to expectations in regards to the yoga program and her opinion after the program finished. In addition, children's behavioral changes that were visibly observed and other observations related to the yoga program were also questioned.

A questionnaire was sent home to parents or the legal guardians of children. The questions addressed the impact of yoga classes in the home environment as well as their perceptions of the influence of the yoga program in the life of their children.

Yoga program

The yoga program was implemented in the physical education classes during 12 weeks, twice a week for 45 min each lesson. Since the public school has no gym or other safety space, the lessons were implemented in the children classroom. A student-centered approach of teaching was implemented. Appropriated practices were provided with a yoga movement curriculum with scope and sequence based on children the initial level of performance in order enhances cognitive, social, and motor development. The teacher used direct and indirect learning strategies, encouraging children do modeled movements, and to discovery the different ways to move.^[20,21] The instruction was meaningful and adequate to the children level of understanding, using simple words, and cue word to perform the yoga postures. The teacher also encourages the self-expression throughout the movement^[22-24] and equally encourages boys and girls as well the child with disability to achieve success and cooperate with each other. Different skill levels of yoga tasks were presented in each session that encompassed group diversity of skills levels. The teacher strategies also supported the autonomy of children, personal and group achievements, and the active participation in decision-making during the learning process.^[22-25]

Teacher also employed a strategy of “gymnastics storied” in which yoga postures were practiced in accordance with different children’s books. Stretching and massage in pairs, meditation, and relaxation as well as games and music related to the practice of yoga were also implemented. In addition, the classes emphasized the breathing awareness and the adoption of basic values of social interaction, nonviolence, truthfulness, respect with themselves and the others, and cooperation.

Data analysis

Statistical analysis was conducted using SPSS-20.0 (Statistical Package for Social Sciences, IBM). Descriptive statistics were presented (median, quartiles, minimum, and maximum), and due to the small number of participants and non-normality distribution of the data, nonparametric analyses were used adopting $P \leq 0.05$. The Wilcoxon test was used to compare the pre- to post-intervention changes in the raw scores for the tasks and subtests (balance, running speed and agility, strength, and flexibility) and in the PSPCSA.

Using the children’s semi-structured interviews, convergent meanings were organized and resulted in three categories: (1) Content learned in the program, (2) desire to sustain yoga practice over time, and (3) self-perceptions of intervention impact. Data reduction from the children interviews into the three categories was conducted using of frequencies of behavior, presented in figures. The speeches more representative of these three categories also were presented.

RESULTS

Balance

Positive changes, from pre- to post-intervention, were observed in the balance subtest and in the following tasks: B2 (walking on a line), B5 (walking touching heel and toes on the line), B6 (staying stabilized with one leg over the line and with eyes closed), B8 (staying stabilized touching heel and toes on the balance beam) [Table 1].

Running speed and agility

Positive changes, from pre- to post-intervention, were observed in the running speed and agility subtest and RSA2 task (set the pace). A tendency to significance was observed in the RSA5 task (jump sideways with feet together) [Table 1].

Strength and flexibility

A positive change from pre- to post-intervention was observed in the strength subtest and the

following strength task: S5 task (lift arms and legs in the prone position). Positive changes, from pre- to post-intervention, were also observed for flexibility scores [Table 1].

Perceived competence

Regarding cognitive and motor perceived competence, as well as for the maternal and social acceptance, there were no significant differences from pre- to post-intervention [Table 2].

Children interviews

Content learned in the program

Figure 1 shows the frequency of children’s answers about what they have learned in yoga classes. The majority of the children recall the postures, the fun activities as well as the breathing exercises learned in the program. Children also highlighted how important were being these tools and how they were using this in their lives. The following speech emphasizes the children’s meaning related to the yoga program,

“We learned that when we are in bad times we have to do yoga because it calms us. It means that calms the heart.” (Speech 1)

Desire to sustain yoga practice over time

When questioned about the desire for future practice, all children expressed that they would like to continue practicing yoga at school in their physical education lessons ($n = 15$). When asked why they would like to continue the yoga practice, children responses reflected different desires, detailed in Figure 2, with the prevalence of “nice activity” and “relax and calm feelings” as answers. Children justified this desire relating to positive feelings, overcome difficulties, sadness, and fears. Some of the discourses listed below also reflect their thoughts about this theme and also express how they felt great during the yoga classes:

“Yoga is for us to relax, to feel better and to feel calm while in sad and emotional moments” (Speech 2);

“Yoga is breathing, to breathe better, for when we feel sad, for when we are in a bad mood, then Yoga does well” (Speech 3);

“Yoga is something that can make us feel calmer and more relaxed in the days that we are mad or angry.” (Speech 4)

Table 1: Pre and post intervention raw scores and score for each BOT-2' task and subtest total score

Subtests and tasks	Pré-intervention		Post-intervention		P
	Md (p25-p75)	Min-max	Md (p25-p75)	Min-max	
Balance	31 (29-32)	16-34	32 (30.2-33)	22-35	0.028
B1	10 (10-10)	4-10	10 (10-10)	10-10	0.180
B2	8.5 (7-9)	6-10	9 (8-10)	7-15	0.047
B3	10 (10-10)	4-10	10 (10-10)	8-10	0.180
B4	10 (10-10)	5-10	10 (10-10)	1-10	1.00
B5	5.5 (3.2-8)	0-13	10 (7.2-13)	1-16	0.001
B6	3 (2-6)	1-10	6.5 (4.2-9.7)	2-10	0.009
B7	10 (5.5-10)	1-10	10 (6-10)	4-10	0.726
B8	10 (10-10)	3-10	10 (6.5-10)	2-10	0.026
B9	4 (3-5)	1-8	3 (2.5-5.5)	1-8	0.619
Agility	21.5 (15.7-25)	12-28	20.5 (17.2-23)	13-29	0.608
RSA1	10 (9.2-11)	8-13	10 (10-11)	5-13	0.926
RSA2	10 (8.2-14)	4-17	13 (11-14.7)	8-16	0.050
RSA3	11 (6-17)	2-28	11 (9-15.5)	3-29	0.736
RSA4	10 (7-15.2)	2-21	9 (7-14)	5-19	0.627
RSA5	11.5 (10.2-17.5)	7-27	11 (9.2-15.5)	8-21	0.088
Strength	29 (25.2-30)	21-32	29 (28.5-32.5)	18-35	0.045
S1	85.5 (75-98.5)	63-114	93.5 (71.5-109)	55-130	0.393
S2	17.5 (15-20.7)	12-26	18.5 (16-21.5)	10-24	0.815
S3	17 (13.2-23.7)	9-27	18.5 (15.2-21.5)	8-25	0.932
S4	32.5 (23-56.7)	12-60	30 (20-56.7)	5-60	0.955
S5	9.5 (5-24.2)	0-39	16 (11-47.2)	8-60	0.050
Flexibility	36 (30.2-43.5)	23-56	41.5 (30.7-47)	14-57	0.010

Md=Median, p25=Percentile 25, p75=Percentile 75, Min=Minimum, Max=Maximum, B1-to-B9=Balance tasks, RSA1-to-RSA5=Running speed and agility tasks, S1-to-S5=Strength tasks

Table 2: Pre and post intervention results of perceived competence

Subscales and total score	Pre- intervention		Post- intervention		P
	Md (p25-p75)	Min-max	Md (p25-p75)	Min-max	
Cognitive	22 (14-24)	9-24	20 (14-24)	13-24	0.166
Motor	23 (19-24)	15-24	21.5 (20-24)	14-24	0.685
Social	21 (18-24)	11-24	22.5 (16.7-24)	13-24	0.593
Maternal	19 (16-23)	8-24	18 (16-23.5)	9-24	0.663
Total scores	79 (69-93)	49-96	80.5 (71.5-92.7)	52-96	0.379

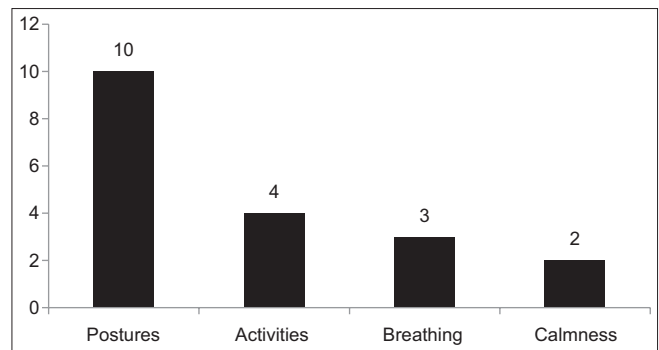
Md=Median, p25=Percentile 25, p75=Percentile 75, Min=Minimum, Max=Maximum

Self-perceptions of intervention impact

When questioned about their feelings related to changes after practicing yoga, the majority of children, although addressing the question with different perceptions, recalled increments in sensations of calm, courage, good behavior, and happiness as well as the reduction of fear [Figure 3]. Some speeches also portrayed improvements in social interactions and in the perceptions of doing better. The following discourses portrait these feelings about this theme:

“And I feel that I’m becoming a little better at what I do” (Speech 5);

“The change is that now I’m more happy, I don’t have nightmares anymore. I’m also not afraid. Now I’m happy” (Speech 6);

**Figure 1:** Frequency of children's responses about yoga classes content learned

“I felt good, then my friends liked me and wanted to always play with me for them learn” (Speech 7);

“It’s because when I’m afraid of something I say that: HAAAAAAAAA, (referring to the HAAA breath) I do it because then I get braver” (Speech 8);

“It is for calm down, to the brain become intelligent. Now I’m better behaved because you made a lot of cool stuff.” (Speech 9)

The children also reported that they carried out the practice at home to show or teach their parents ($n = 3$), to feel better ($n = 1$), to improve their health ($n = 1$), because it is a cool practice ($n = 2$), and because she/he likes ($n = 1$). One child also reported not only the personal benefits of yoga but also the positive impact

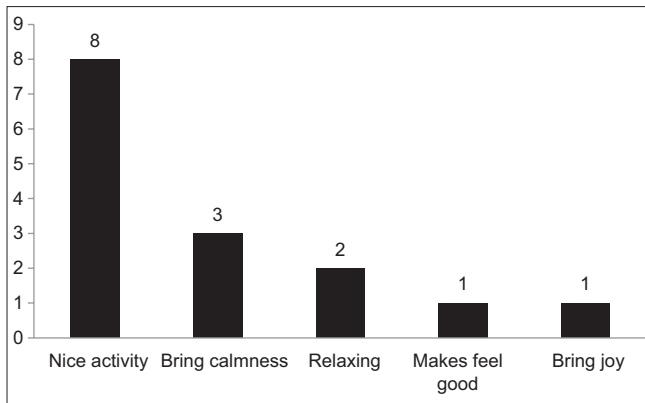


Figure 2: Frequency of children's responses about the desire to continue the practice of yoga

extended to her family, specially related to health aspects. In regards to her thought about this theme, the student affirmed:

"I saw that yoga does well for my health, and also for my parents' and my family's health." (Speech 10)

Teacher interview

The classroom teacher stated that the children were in general more calm and concentrated. She also highlighted that the students were very affectionate to the yoga classes, and she said that the values of respect developed and discussed in the yoga classes had impact on her classes by improving children positive interactions.

Parental questionnaire

Although only half of the parents returned the questionnaire, the answers demonstrated that in the parents' perceptions, most of children started to be more active at home practicing in the free times the postures learned in the program ($n = 6$). Parents also reported that the children were more relaxed and calm ($n = 4$), and parents noticed improvements on children's posture ($n = 1$) and breathing ($n = 1$).

DISCUSSION

This study was conducted to analyze the effects of yoga practice on the motor, physical, and behavioral parameters of 6–8-year-old children. Our findings suggest positive improvements on the static and dynamic balance, and strength and flexibility; the participants also reported positive feelings related to the yoga practice.

Regarding balance, all the improvements corroborate with previous studies that also suggested that the practice of yoga promotes significant gains on the static and dynamic balance of children.^[12,26-28] We suggest that these gains

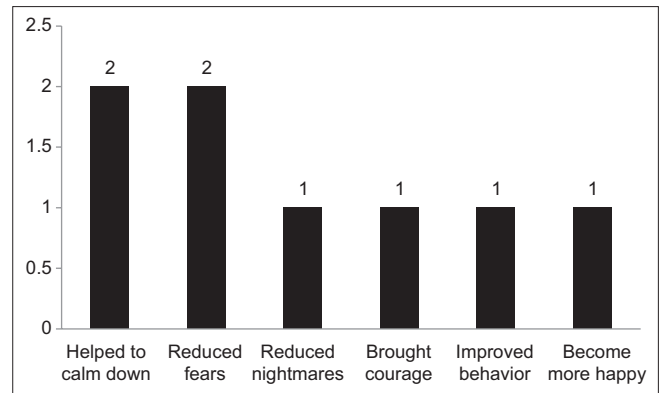


Figure 3: Frequency of children's responses relating to self-perceived changes after practicing yoga

could be related to the practice of some yoga postures, such as the airplane (Virabhadrasana C), tree (Vrksasana), surfer (Virabhadrasana B), and star (Utthita Trikonasana) that requires support on one foot, the trunk tilt forward and also generating instability and the need to working in balance.

The children's ability to speed running and performed agility tasks showed improvement, gains were observed during the tasks of set the pace and jump sideways with feet together. No studies were found related to the assessment of these abilities after the practice of yoga in children that to some extension limits our possibilities to compare results. It has been suggested that yoga promotes improvements in motor coordination and general motor control,^[10] consequently, could generate improvements in total body coordination and temporal organization,^[27] which are essential features perform speed and agility tests. Further studies are necessary to improve the yoga effects on the speed and agility of children.

The results observed in this study regarding children enhancements on strength received support from three previous. Researchers reported visible improvements on strength as a result of participation on a yoga intervention.^[12,26,27] In addition, increases in the median were large [Table 1], which indicate a probable limitation to achieve significance in some strength tasks due to the reduction in number of children in this study. Moreover, the strength subtest showed significant and positive change, so the discrete changes (small increments) of each task were sufficient to indicate positives changes in strength pattern of children. During the program, several yoga postures emphasize this physical capacity, such as superman (Salabhasana), boat (Navasana), invisible chair (Utkatanasana), and half bridge (Setu Bandhasana). These postures that require the work of different muscle groups, such as dorsal and abdominal region, as well as upper and lower limbs, that may have influenced the positive results observed in children performance.

The positive increments in flexibility performance also corroborate with previous research.^[13,26] We suggested that these gains are result from the practice of the postures that emphasizes muscles, stretching. Some examples of postures that may have contributed for these results are the sandwich (Paschimottanasana and Utanasana), dog (Adho Mukha), butterfly (Baddha Konasana), and snake (Bhujangasana). All these postures require the maintenance position and different muscle groups' stretching impacting the children performance.

No significant results were observed on the perceived competence and maternal and social acceptance results. Although previous studies highlight that yoga practice could promote the increase of self-perception and self-regulation of behaviors,^[13,28-30] our study could not find support for these changes in behavior. However, some of the children thoughts illustrate well a couple of changes in self-perception and self-improvement (please refer to Speech 5). It is important to notice that self-perceptions are hard to be changed in a short period of time, may be an extensive program would detect more convincing changes related to this parameter.

The children's interest in continuing the practice of yoga after the end of the program, as well as the appreciation, and the spontaneous participation in the lessons, observed in this study, has been previously acknowledge in the literature.^[14,27-29,31,32] Furthermore, the feelings expressed by children [Figure 3 and children discourses] corroborate with the literature suggesting that yoga practice can promote self-observation and self-knowledge in children.^[16]

The achievement of a greater command and control of emotions and calm feelings in nonpleasant experiences, reported in literature,^[13,14,33] were also observed in the children discourses (refer to speeches 3, 4, 5, and 8). The children's thoughts show that the yoga program helped them learn how to deal with emotions, and adapt to face and encounter challenging situations without suffering, interesting acknowledgment demonstrated by children in this study at young age.

In addition, improvements in social interactions (refer to speech 7) and reflection about health-related values were also reported (refer to speech 10), similar to the previous study.^[33] The literature also supports that yoga could contribute in reducing the levels of stress and anxiety in children,^[10,14,26] which was clearly noticed in children's interviews (refer to speeches 1, 2, 4, and 9).

Previous studies suggest that yoga practice could contribute in increasing social acceptance, communication, and contributions in classes,^[29,30] result also observed in

children's interviews. The speeches 7 and 9 were very strong in expressing these feelings. Children reported that after the yoga program they start to play with friends more often, felt more intelligent and well behaved in the class. The yoga practice for children seems to have a significant impact on general well-being,^[10,13,34] resulted confirm in this study.

Ultimately, the benefits reported in children, in this study, are similar to the findings for adults.^[11] Our results supported that yoga practice is very suitable for the school environment, serving as an educational intervention that promotes development and health for children, as previously suggested.^[10,12] It could also contribute for the well-being of children's future^[29] if constantly included in the curriculum program.

The limitations of the study were the short period of intervention that was limited by the school board of education, the small sample size since it was an automatic choice for children, and also the lack of a control group. Further studies are necessary to detailed determine the changes that a yoga program can generate for school-age children, considering the educational values of this practice.

CONCLUSION

Based on the results of this study, we suggest that a 12-week yoga program promoted positive effects on the development of motor and physical parameters of children, especially on balance, strength, and flexibility. The yoga practice although in a short period was also efficient in generating positive well-being and social interaction. The results contribute in recognizing yoga as a potential education tool for a full and lasting development of children. It is also important to highlight that the practice of yoga for children must be developed in a playful manner and covering all aspects of child development.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Palma MS, Pereira BO, Valentini NC. Guided play and free play in a enriched environment: Impact motor development. *Motriz* 2014;20:177-85.
2. Guaragna MM, Pick RK, Valentini NC. Parents and teacher's perceptions of the influence of an inclusive motor skill intervention program in the social behavior of children with and without disabilities. *Movimento* 2005;11:87-117.
3. White TG, Taylor AG. Yoga. Perspectives on emerging research and scholarship. *J Yoga Phys Ther* 2013;3:1-3.

4. Sonima Foundation. Available from: <http://www.sonimafoundation.org/>. [Last accessed on 2015 Jul 02].
5. Yoga Ed. Available from: <http://www.yogaed.com/>. [Last accessed on 2015 May 05].
6. Yoga in Schools. Available from: <http://www.yogainschools.org/index.php/about/our-story/>. [Last accessed on 2015 Jul 02].
7. G1- Globo- School in the south of the island work with meditation and Yoga techniques with students. Available from: <http://g1.globo.com/sc/santa-catarina/jornal-do-almoco/videos/v/escola-no-sul-da-ilha-trabalha-tecnicas-de-meditacao-e-yoga-com-alunos/4307114/>. [Last accessed on 2016 April 09].
8. Yoga na Educação. Available from: <http://www.ryedabahia.blogspot.com.br/>. [Last accessed on 2015 Jul 05].
9. Arenaza, Diego Ernerto Marcelo. Research Report. The Yoga in school. Florianópolis: Department of Teaching Methodology. Science Center of Education, Federal University of Santa Catarina (UFSC); May 08, 2002.
10. Galantino ML, Galbavy R, Quinn L. Therapeutic effects of yoga for children: A systematic review of the literature. *Pediatr Phys Ther* 2008;20:66-80.
11. Woodyard C. Exploring the therapeutic effects of yoga and its ability to increase quality of life. *Int J Yoga* 2011;4:49-54.
12. Bubela D, Gaylord S. A comparison of preschoolers' motor abilities before and after a 6 week yoga program. *J Yoga Phys Ther* 2014;4:1-4.
13. Berger DL, Silver EJ, Stein RE. Effects of yoga on inner-city children's well-being: A pilot study. *Altern Ther Health Med* 2009;15:36-42.
14. Ehud M, An BD, Avshalom S. Here and now: Yoga in Israeli schools. *Int J Yoga* 2010;3:42-7.
15. Thomas JR, Nelson JK, Silverman SJ. Métodos de Pesquisa em Atividade Física. 6th ed. Porto Alegre, RS: Artmed; 2012.
16. Faria AC, Deutsch S, Damasceno F, Fraiha AL, Castro M. Yoga in the school: An integration proposal to self knowing. In: Iberoamericano Conference of Science, Technology, Innovation and Education, Buenos Aires; 2014. Available from: <http://www.oei.es/congreso2014/memoriactei/1519.pdf>. [Last accessed on 2016 April 09].
17. Bruininks RH, Bruininks BD. Bruininks-Oseretsky test of motor proficiency, (BOT-2). 2nd ed. Minneapolis, MN: Pearson Assessment; 2005.
18. Council of European. Eurofit: Handbook for the European Test of Physical Fitness. Rome: Council of European/Committee for Development of Sport; 1988.
19. Harter S, Pike R. The pictorial scale of perceived competence and social acceptance for young children. *Child Dev* 1984;55:1969-82.
20. COPEC-Council on Physical Education for Children. Appropriate Practices in Movement Programs for Young Children Ages 3-5. Reston: AAHPERD Publication; 2000.
21. Nobre FS, Coutinho MT, Valentini NC. The ecology of motor development in coastal school children of Brazil northeast. *J Hum Growth Dev* 2014;24:263-73.
22. Valentini NC, Rudisill ME, Goodway JD. Incorporating a mastery climate into elementary physical education: It's developmentally appropriate! *J Physic Educ Recreat Dance* 1999;7:28-32.
23. Valentini NC, Rudisill ME, Goodway JD. Mastery climate: Children in charge of their own learning. *Teach Elem Phys Educ* 1999;10:6-10.
24. Valentini NC, Rudisill ME. Effectiveness of in inclusive mastery climate intervention on the motor skill development of children. *Adapt Phys Activ Q* 2004;21:330-47.
25. Valentini NC, Rudisill ME. Motivational climate, motor-skill development and perceived competent. Two studies of developmental delayed kindergarten children. *J Teach Phys Educ* 2004;23:216-34.
26. Moraes FO, Balga RS. The yoga in the school context as strategy to change students' behavior. *Mackenzie Journal of Physical Education & Sports* 2007;6:59-65.
27. Santos AG, Almeida GZ, Ribeiro SS, Lopes C, Silva CG. Yoga, uma abordagem complementar para o desenvolvimento psicomotor da criança na escola. *Coleção Pesqui Educ Fis* 2013;12:135-44.
28. Stueck M, Gloeckner N. Yoga for children in the mirror of the science: Working spectrum and practice fields of the training of relaxation with elements of yoga for children. *Early Child Dev Care* 2005;175:371-7.
29. Powell L, Gilchrist M, Stapley J. A journey of self-discovery: An intervention involving massage, yoga and relaxation for children with emotional and behavioural difficulties attending primary schools. *Emot Behav Diffic* 2008;8:193-9.
30. Broderick PC, Metz S. Learning to breathe: A pilot trial of a mindfulness curriculum for adolescents. *Adv Sch Ment Health Promot* 2011;2:35-46.
31. Slawta J, Bentley J, Smith J, Kelly J, Syman-Degler L. Promoting healthy lifestyles in children: A pilot program of be a fit kid. *Health Promot Pract* 2008;9:305-12.
32. Steiner NJ, Tahnee KS, Pop PG, Frenette EC, Perrin EC. Yoga in an urban school for children with emotional and behavioral disorders: A feasibility study. *J Child Fam Stud* 2013;22:815-26.
33. Davidson RJ, Dunne J, Eccles JS, Engle A, Greenberg M, Jennings P, et al. Contemplative practices and mental training: Prospects for American education. *Child Dev Perspect* 2012;6:146-53.
34. Hagen I, Nayar US. Yoga for children and young people's mental health and well-being: Research review and reflections on the mental health potentials of yoga. *Front Psychiatry* 2014;5:35.

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